fessor Scott at this time is recommended because of the distinguished place he has won for himself in the science of paleontology and its related fields of organic evolution and historical geology." The committee included Professors Eliot Blackwelder, Stanford University, *chairman;* E. L. Bruce, Queen's University, Kingston, Ontario; John P. Buwalda, California Institute of Technology; James Gilluly, University of California at Los Angeles; Adolph Knopf, Yale University; Donald H. McLaughlin, Harvard University, and Dr. W. P. Woodring, United States Geological Survey.

Previous recipients of the Penrose Medal are: 1927, Professor Thomas Chrowder Chamberlin, University of Chicago; 1928, Dr. Jakob Johannes Sederholm, director of the Geological Survey of Finland; 1930, Professor François Alfred Antoine Lacroix, director of the Mineralogical Laboratory of the Museum of Natural History of Paris; 1931, Professor William Morris Davis, Harvard University; 1932, Dr. Edward Oscar Ulrich, United States Geological Survey; 1933, Professor Waldemar Lindgren, the Massachusetts Institute of Technology; 1934, Professor Charles Schuchert, Yale University; 1935, Professor Reginald Aldworth Daly, Harvard University; 1936, Dr. Arthur Philemon Coleman, University of Toronto, and 1938, Professor Andrew Cowper Lawson, University of California.

SCIENTIFIC NOTES AND NEWS

THE Hughes Medal of the Royal Society, London, has been awarded to Dr. G. P. Thomson, professor of physics at the Imperial College of Science, London, for his "important discoveries in connection with the diffraction of electrons by matter." Professor Thomson is the son of Sir J. J. Thomson.

THE Sigma Xi lecture at the Columbus meeting of the American Association for the Advancement of Science will be given by Dr. Kirtley F. Mather, professor of geology at Harvard University, on Thursday, December 28. He will speak on "The Future of Man as an Inhabitant of the Earth." In honor of Dr. Mather, the society has arranged a dinner preceding the lecture. Dr. George A. Baitsell, president of the society, will preside.

IN honor of Robert J. Moore, development manager of the Varnish and Resin Division of the Bakelite Corporation, a dinner was given at a recent meeting of the American Institute of Chemists. The speakers were Dr. Marston T. Bogert, Dr. Robert Calvert, Dr. W. T. Read, Dr. F. D. Snell and Dr. Maximilian Toch.

DR. OLIVER E. BUCKLEY, executive vice-president of the Bell Telephone Laboratories, New York City, with which he has been associated since 1925, has been elected president to the Engineering Foundation to succeed the late Professor George E. Beggs. F. F. Colcord, vice-president of the United States Smelting Company, has been made vice-chairman of the foundation; Kenneth H. Condit has become chairman of the research procedure committee, and E. M. T. Ryder a member of that committee. Professor Walter I. Slichter, of Columbia University, has been elected a member of the executive committee.

DR. W. H. PIERRE, head of the department of agronomy at the Iowa State College, was elected president of the Soil Science Society of America at the New Orleans meeting. During the past year he was secretary of the society.

OFFICERS for 1940 of the Mineralogical Society, London, have been elected as follows: *President,* Arthur Russell; *Vice-presidents,* Professor C. E. Tilley, Dr. W. Campbell Smith; *Treasurer,* F. N. Ashcroft; *General Secretary,* Dr. G. F. Claringbull; *Foreign Secretary,* Sir Thomas H. Holland; *Editor of the Journal,* Dr. L. J. Spencer.

DR. HENRY W. HOLMES has retired as dean of the Harvard Graduate School of Education. He will continue his work as professor of education and has become chairman of the newly established University Committee on Educational Relations. Dr. Francis T. Spaulding succeeds him as dean of the school.

FREDERICK M. FEIKER, executive secretary of the American Engineering Council and a former director of the United States Bureau of Foreign and Domestic Commerce, has been named dean of the School of Engineering of the George Washington University.

D. W. MACCORQUODALE, formerly assistant professor of biochemistry at the School of Medicine of St. Louis University, has joined the research staff of the Abbott Laboratories, North Chicago, Ill., where he is in charge of hormone research.

RAYMOND P. SLOAN, vice-president of the Modern Hospital Publishing Company, Inc., associate editor of *Modern Hospital* and managing editor of *The Nation's Schools,* has been elected a member of the Board of Trustees of the Long Island College of Medicine.

DR. WILLIAM F. TALBOT, who in June joined the staff of Arthur D. Little, Inc., chemists and engineers of Cambridge, Mass., for the purpose of carrying out studies for the General Printing Ink Corporation, has recently been made research director of this company.

PROFESSOR EDWARD L. MORELAND, dean of engineering at the Massachusetts Institute of Technology, a member of the engineering firm of Jackson and Moreland, has been elected a member of the corporation of the Babson Institute, Wellesley Hills, Mass.

DR. DONALD WYMAN, of the Arnold Arboretum, Harvard University, has been appointed chairman of the newly constituted committee on arboretums and botanic gardens of the American Institute of Park Executives.

DR. C. MONTAGUE COOKE, JR., of the Bishop Museum, Honolulu, was made chairman of the standing committee on the distribution of terrestrial faunas in the inner Pacific of the Pacific Science Congress, which was held in San Francisco last summer.

DR. COLIN BARNARD, of the Council for Scientific and Industrial Research, Canberra, has been appointed local honorary secretary for the Australian and New Zealand Association for the Advancement of Science in the Australian Capital Territory, to fill the vacancy caused by the resignation of Professor G. A. Currie.

A COMMITTEE of members of the faculty of the School of Medicine of Yale University has been appointed to make a survey of the plan of instruction of the school in the light of the primary educational objective of giving broad training to qualified men and women for medical work. Members of the committee are as follows: Dr. Hebbel E. Hoff, associate professor of physiology, *chairman;* Drs. Warren T. Brown, assistant professor of psychiatry and mental hygiene; Philip B. Cowles, assistant professor of immunology; Daniel C. Darrow, associate professor of pediatrics; Alfred Gilman, assistant professor of pharmacology and toxicology; John C. Leonard, instructor in medicine; Gustaf E. Lindskog, assistant professor of surgery; Leon S. Stone, associate professor of anatomy; Herbert Thoms, associate professor of obstetrics and gynecology; John H. Watkins, assistant professor of public health; Abraham White, assistant professor of physiological chemistry; Harry M. Zimmerman, associate professor of pathology, and Dean Bayne-Jones, *ex officio.*

GRANTS recommended by the National Advisory Cancer Council, of which Professor Ludvig Hektoen is executive director, at its meeting on December 4 include Dr. Albert Tannenbaum, Michael Reese Tumor Clinic, Chicago, $3,600, for work on factors in the initiation of induced and spontaneous tumors; Dr. Wm. Ray Bryan, Duke University, $1,000, toward work on the papilloma virus protein and related material; Dr. Herbert M. Evans, University of California, $1,800, for study of nature and amount of urinary gonadotropic hormone coincident with various testicular neoplasms; Dr. Mont R. Reid, University of Cincinnati, $2,400, toward the improvement of present methods of diagnosis and treatment of cancer, and National Research Council, Washington, D. C., $3,000, in support of the American Registry of Pathology.

DR. ROBERT A. MILLIKAN, chairman of the Executive Council of the California Institute of Technology, who is engaged in a study of cosmic rays on a trip around the world, was in India when last heard from. He will continue his trip to Egypt and plans to return to the United States in February.

KARL P. SCHMIDT, a member of the Magellanic Expedition of the Field Museum of Natural History, has returned to Chicago and to his work as curator of amphibians and reptiles. Other members of the expedition, the leader, Dr. Wilfred H. Osgood, chief curator of zoology; Colin C. Sanborn, curator of mammals, and John Schmidt, assistant, will remain in the field for at least four months more. At present they are collecting in Chile, and soon will move on to the extreme southern tip of South America, along the Straits of Magellan, and to the island of Tierra del Fuego, where they will continue the research begun in 1834 by Charles Darwin on the cruise of the *Beagle.* Mr. Schmidt brought back approximately 500 specimens of mammals, 250 birds, 1,200 reptiles and amphibians, 400 fishes and a number of insects and invertebrates. The great majority are of species entirely new to the collections of Field Museum, and therefore of great importance to zoological research.

D. F. HEWETT, of the U. S. Geological Survey, has returned after ten weeks' absence in the West, where he visited most of the mining districts in which geologists of the survey are engaged in studies of strategic mineral deposits. He also conferred with numerous cooperating state officials. J. T. Pardee returned at the close of the field season, during which he supervised an examination of manganese deposits at Philipsburg, Mont., as a part of the strategic minerals program, and examined a dam site on Carbon River, near Tacoma, Wash., for the Water Resources Branch of the Geological Survey. H. E. Gregory spent about three weeks in the Washington offices of the Survey completing his report on the geology of the Zion National Park. He has returned to Honolulu.

DR. KARL F. MEYER, professor of bacteriology at the University of California and director of the Hooper Foundation for Medical Research, will deliver on December 21 the third Harvey Society Lecture of the current series at the New York Academy of Medicine. He will speak on "The Host-Parasite Relationship, with Particular Reference to Heterogeneous Infection Chains."

DR. M. L. CROSSLEY, director of research of the Calco Chemical Company, Bound Brook, N. J., re-

cently gave an address on "The Sulfanilamides as Chemotherapeutic Agents" before the New York Section of the American Chemical Society at the Chemists' Club. Professor Louis P. Hammett, of Columbia University, chairman of the section, presided at the meeting, which was preceded by a dinner at the club.

THE annual Huxley Memorial Lecture of the Royal Anthropological Institute, London, was delivered on November 28 by Dr. R. R. Marett, rector of Exeter College, Oxford. The title of the lecture was "Charity and the Struggle for Existence."

DR. EARNEST A. HOOTON, of Harvard University, gave an illustrated lecture, entitled "Anthropology and the Belligerents," on December 11 and 12 at the Smith College Club at Cambridge.

DR. PHILIP FOX, director of the Museum of Science and Industry of Chicago, was one of the speakers at a conference on vocational problems held at Northwestern University on December 6.

PROFESSOR DONALD E. CUMMINGS, of the University of Colorado School of Medicine, was the guest speaker at a meeting on November 25 of the Colorado Alpha chapter of Alpha Epsilon Delta, the national honorary pre-medical fraternity. The subject of his address was "Silicosis." Dr. C. E. Burford, head of the department of urology in the St. Louis University Medical School and president-elect of the Missouri Medical Association, was the guest speaker at the annual initiatory banquet of the Missouri chapter. His subject was "Some Shallow Excursions into the Fringes of Medicine."

THE seventh annual meeting of the American Science Teachers Association will be held on December 27 and 28 in conjunction with the American Association for the Advancement of Science under the presidency of W. L. Eckenberry, of the New Jersey State Teachers College at Trenton. On Wednesday morning, Thomas Midgley, Jr., Worthington, Ohio, chairman of the Board of Directors of the American Chemical Society, will make an address on synthetic rubber, in connection with which there will be an exhibit by the du Pont Company and an address on the anti-scorbutic vitamins by Dr. Charles Glen King, professor of chemistry at the University of Pittsburgh. "A History of Science in Mural Painting," by Elmer E. Taflinger, will be presented and briefly explained by Robert Lovell Black, instructor of biology at the Emmerich Manual Training High School, Indianapolis. At the luncheon meeting on Thursday Dr. Walter B. Cannon, president of the association, will make an address entitled "The Rôle of Chance in Discovery."

THE Geological Society of Philadelphia will hold one meeting each year at which a symposium will be presented on a major problem in the science of geology. Authorities on the subject will be invited to present their views, and other speakers will be welcomed. One problem, preferably of a controversial nature, will be fully considered. The subject of the first symposium will be the origin of anorthosites of the Adirondack type. Professor Robert Balk, of Holyoke College, and Professor A. F. Buddington, of Princeton University will speak on the Adirondack anorthosite. Katharine Fowler-Billings will discuss the Laramie (Wyoming) anorthosite and Dr. T. F. W. Barth, authority on certain Norwegian anorthosites, will take part. The opening session will be held at the Academy of Natural Sciences in Philadelphia at 8 P.M. on December 21, and the meetings will be continued next morning at Bryn Mawr College. Officers of the society are H. H. Hess, *president;* E. H. Watson, *past-president,* and A. E. Meier, Swarthmore College, *secretary.*

THE American Society of Tropical Medicine held its thirty-fifth annual meeting in Memphis, Tenn., from November 21 to 24. Special features of the meeting included the fourth Charles Franklin Craig lecture on tropical medicine, on "The Mechanism of Acquired Immunity to Metazoal Parasites," by Dr. W. H. Taliaferro, of the University of Chicago. The presentation of the Walter Reed Medal to Dr. William B. Castle, of Harvard University, was made by Dr. Richard P. Strong. Dr. Alfred C. Reed delivered his presidential address on "The Future of Tropical Medicine" at the annual luncheon of the society on November 23. On Thursday afternoon a joint session was held with the National Malaria Committee.

THE Geological Society of London announces that the eighteenth session of the International Geological Congress, which was to have been held in London from July 31 to August 8 next year, is indefinitely postponed. The London *Times* states that the invitation to hold the congress was accepted by the bureau of the seventeenth congress in Moscow, 1937, and was the outcome of a strong desire on the part of the fellows of the Geological Society of London and of British geologists in general to reciprocate the hospitality received by them on so many occasions in other countries, and to fulfil the wish that the congress, which last met in Great Britain in 1888, should meet there again. Sir William Bragg, president of the Royal Society, had been elected honorary president of the general organizing committee.

THE School of Mathematics of the Institute for Advanced Study each year allocates a small number of stipends to gifted young mathematicians and mathematical physicists to enable them to study and to do research work at Princeton. Candidates must have given evidence of ability in research comparable at least with that expected for the degree of doctor of

philosophy. Blanks for application may be obtained from the School of Mathematics of the institute, Fuld Hall, Princeton, N. J., and are returnable by February 15, 1940.

THE Rumford Committee owns a perfect diamond slab $9 \times 9 \times 3$ millimeters. The large surface and that at one end are flat to 0.1 wave-length of sodium light and are set at 90 degrees, the edge appearing perfectly sharp under a 300-fold magnification. The other surfaces are all rough cleaned. If any person would like to borrow this slab for experimental purposes, application should be made to the chairman of the committee, Norton A. Kent, the American Academy of Arts and Sciences, 28 Newbury Street, Boston, Massachusetts.

THE Galton Laboratory, of University College, London, is carrying on its work at the Rothamsted Experimental Station, Harpenden, Hertfordshire. It is announced in *Nature* that in view of the importance of chemical engineering at the present juncture, the Ramsay Laboratory of Chemical Engineering at University College, London, has reopened, and students will be accepted for training in chemical engineering and research.

AT the State Serum Institute, Copenhagen, Dr. Th. Madsen has established an International Salmonella Center, financed by the Commonwealth Fund. This laboratory supplies to Salmonella Centers in the various countries the sera and cultures necessary for serological diagnosis, *i.e.,* 50 sera and 100 cultures. So far, thirty-seven Salmonella Centers have been established. Those in the United States are: New York City, Dr. F. Schiff, Beth Israel Hospital; Albany, N. Y., Dr. A. Wadsworth, Department of Health, and Lexington, Ky., Dr. P. R. Edwards, department of animal pathology, University of Kentucky. The centers will receive and investigate doubtful cultures without charge.

DISCUSSION

GRASSLAND AS A SITE FOR BASIC RESEARCH ON TERRESTRIAL ANIMALS

THE greater part of a century has passed since Darwin published his famous work on the origin of species, and as yet no lands nor combined *natural* outdoor and laboratory facilities have been provided to study competition and the interchange of forces, which made up the basis of his theory. With the development of modern ecology and ecological processes, methods have come into use whereby studies of biotic interaction may profitably be carried on alone or in combination with laboratory studies. Various scientists have long hoped for lands and a laboratory where the interactions of land plants and animals and their physiological relations to climate can be studied just as the marine plants and animals are investigated in seaside biological stations. Pure science studies of terrestrial animals may well have much more intimate relations to human needs than marine inquiries. The sea has attracted the efforts of scientific men and the funds of granting bodies and philanthropists perhaps to an extent disproportionate to its human value. It has been demonstrated at the State University of Iowa that grassland grasshopper eggs may be used as a material for basic physico-chemical research, rivaling the sea urchin egg. The investigators at the University of Chicago have made use of striped ground squirrels taken from their native grassland haunts, for fundamental studies in hormones and for studies of the environmental factors that influence the important function of reproduction.

A grassland laboratory possesses facilities for research not available in some other types of land, such as forest or agricultural land. The great complication of forest vegetation makes many types of shelter and many niches affording protection from the elements to animals and smaller plants, which renders observations difficult. Tundra shares the advantages of grassland for researches involving field observations. These barren lands, however, are in a climate forbidding to continued scientific research and are remote from academic centers. Grassland, however, affords unrivaled opportunities for scientific biological study for the following reasons:

(1) Grassland allows full visibility of the more important larger animals and plants.

(2) Niches and hiding places for animals, such as tree tops, fallen and hollow trees and dense thickets do not occur in Great Plains areas to retard observation.

(3) The life histories and life span of the principal plants are about one tenth that of forest trees, and this greatly facilitates long-time observation because of the more rapid turnover and hence, the quicker response to climatic fluctuations.

(4) The grassland flora and fauna have intimate relations to the general problems of agriculture and human welfare on the Great Plains.

(5) Grassland constitutes about 40 per cent. of the original vegetation of the earth's land surface and is of great importance to mankind in general.

(6) It has been much less studied than forest.

(7) Stable primeval areas or semi-primeval areas of large size are rapidly disappearing. In another generation the program proposed by biological scientists may perhaps be impracticable.